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ABSTRACT

This paper describes 2 years of international telecommunications experiences between seventh grade reading classes in Florida and England. The report is presented in five sections: (1) Telecommunications and Reading Instruction--telecommunications and how it can motive students, develop their confidence, and empower them, and how telecommunications helps to integrate reading into other areas of the curriculum using such tools as bulletin boards, electronic pen pals, comparative literature, creative writing, joint literary publications, and teleconferencing; (2) Getting Started--how a network was selected for the project, funding for the project and online expenses, and changes in operations over the 2 year period; (3) The Florida-England-Connection--getting the project started, conducting online operations, problems with timing, other possibilities using online activities, evaluation of the project based on the first year's goals, other miniprojects, and the second year; (4) What We Have Learned So Far--the impact of the project on students and parents; and (5) Recommendations for Implementing Telecommunications--insights gained from the experiences of the project. A description of how the use of telecommunications changed both the delivery of instruction and the role of the teacher in teaching reading conclude the report. The names and addresses of the producer of one software package and 11 telecommunications services are included. (Contains 9 references.) (ALF)

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Using Telecommunications in Middle School Reading

Rosemary Lee Potter

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ROSEMARY LEE POTTER

Rosemary Lee Potter, a 30-year classroom veteran, has spent the last 15 years infusing reading instruction with technology, first with television and computers and most recently with telecommunications. She is a seventh-grade reading teacher at Safety Harbor Middle School in Clearwater, Florida. For the past two years, under a released-time grant, she has provided support for online learning for the Florida Office of Technology's Florida Information Resource Network (FIRN). In this role, she helps develop new classroom applications and shares with K-12 teachers techniques for integrating telecommunications into the curriculum.

Potter has been a newspaper columnist, has written for professional journals, and is the author of two textbooks, one on technology and schools and one on reading comprehension and thinking. This is her third fastback. Her earlier fastbacks are 208 *Using Television in the Curriculum* and 296 *Using Microcomputers for Teaching Reading in the Middle School*.

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by
Rosemary Lee Potter

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Introduction

One phone call changed the direction of my career! Late one afternoon in the summer of 1989, after a particularly trying day of teaching reading in summer school, the district computer supervisor phoned me at home with this message: "If you could have a telecommunications link between your reading classroom and one in England, what would you do?" I had until the next morning to answer the question in no more than 200 words!

Hinging on my answer was the prospect of a state grant of $2,500 to carry out the project in which my students and I would be matched with online student partners in the United Kingdom. The Florida Department of Education liked my answer, and things began happening – fast.

This fastback serves as a record of what I learned in the ensuing two years of international telecommunications experience in my classroom. I share this experience with the hope that it will serve as a jump-start for middle school reading teachers and others who are considering the use of this rapidly emerging classroom tool.

Telecommunications and Reading Instruction

Telecommunications is simply the use of a computer with a modem to send messages via a phone line to another computer. An external modem is a small peripheral device not much bigger than a computer mouse. (Some computers have internal modems.) The modem accesses the computer network and then transmits and receives messages.

To do this requires special communications software. Just as word-processing software enables one to write and edit at the computer, so communications software enables one to engage in telecommunications with the office down the hall, across town, or on other side of the world. Once the appropriate software settings are selected and an access phone number is keyed in, the user commands the software to tell the modem to access the computer network of choice. In a moment, after the user identifies himself with a pre-arranged ID and password, the user can send or receive messages from near and far, thanks to a main computer hosting both the sender's and receiver's electronic "mailboxes."

This electronic "mailbox" (E-Mail) has the potential of making a powerful impact on a school's reading program. It allows teachers to exchange messages with colleagues about the upcoming state reading conference or to discuss current topics like whole language and cooperative learning. When necessary, messages can be printed out as hard copies. E-Mail is faster and more accessible than conventional mail (often called snail mail). And it is cheaper than phoning.

Sixth-grade students from three schools in the district can publish a joint poetry anthology. Students from 10 middle schools across the state can compile and exchange data on book preferences. Florida students can chat online with an illustrator of teen novels who lives in California. Students can hone their writing skills by developing a joint teen-oriented travel brochure with students at a school in Russia or Japan. If students are reading and discussing a Mark Twain short story and need information about the author, they can go online and quickly locate an article about the famous author in an electronic version of an encyclopedia.

The possibilities for using telecommunications in middle school reading instruction (or anywhere else in the curriculum) are limited only by the resources of the online computer contacts and by teachers' imagination and creativity.

Telecommunications Motivates Reading Instruction

Besides rapid access to bountiful resources, telecommunications helps to undergird middle school reading instruction for both problem readers and advanced readers. Problem readers need the motivation of immediate rewards to keep their attention focused on the task at hand. Telecommunications addresses this need by providing immediate responses to students' questions and requests for information. It captures the attention of students who say they hate to read and requires them to focus on the details of sending and receiving messages. Telecommunications actually sparks some of these reluctant readers to rewrite their messages over and over until they are satisfied that their documents are edited well enough to transmit to students elsewhere to read. When they catch a spelling error in an incoming message, these students do not want to be caught making a similar error in their messages. They read each others' work very carefully before going online.

Take the case of Sean, a burly seventh-grader for whom reading was always a struggle. It was Friday and the following Monday was

a holiday. The bell rang and Sean would have to "log off" until next Tuesday. "But Dr. Potter," he complained, "how come I have to wait until we get back to read my letter from England?" This was the same Sean who had little positive to say about anything in reading class, but earlier in the week had described his first printout as "awesome." Sean went back online and ran a printout of his letter from England and left my class with a late pass. Then there was Marie, who announced, "No way. This isn't going out of here until I say so." These are remarkable, but not uncommon, statements from students who seemingly could care less about reading or writing.

Middle school students who can but don't read frequently find little in school to interest them. They plod through six or seven daily instructional periods doing as little as they can to get by. They get caught up in the whirl of middle school social life and suffer through all the developmental anxieties characteristic of their age. But something remarkable happens when these reluctant readers become engaged in telecommunications activities. When parents ask, "What did you do today?" instead of the usual response, "nothing," these reluctant readers can report that they read poetry written by students in Scotland. They had received the poetry via overnight transmission to their classroom electronic mailbox. The poetry reading was followed up by a lively discussion on Robert Burns, Scotland's favorite poet.

Motivation intensifies when these students are offered the opportunity to ask questions online of their cohorts across the ocean. Without any prodding from the teacher, they scramble to read many reference sources in order to develop informed questions. They read independently to learn about the places where their friendly electronic audiences live.

When advanced readers find out what can be done with telecommunications, they are ready to take the helm. They read at a furious pace and are always angling to do more. With the guidance of the reading teacher, they become involved in such projects as contributing to an online international newspaper for teens. They undertake search-

and-find expeditions both online and in the school media center. They eagerly read everything that comes in online for entering different competitions and vie with each other to answer all the questions. For advanced readers, the teacher's task becomes one of narrowing down the many online opportunities to a manageable level, while at the same time covering required content in the reading curriculum. It is a challenge for teacher and students alike!

Telecommunications Develops Confidence

Since students cannot see each other as they communicate via computer modem, their usual pre-adolescent concerns about appearance, clothes, social status, and gender are set aside. Whether quiet or strident, the sound of their young voices does not matter. When participating in telecommunications activities, they are all on a level playing field. They are part of a global student body, removed from the isolation of their classroom by "traveling" great distances to acquire information firsthand from their peers across the seas. The cultural insight gained through such "travels" enhances students' self-image as citizens of their country and gives them confidence in their ability to be good ambassadors.

In mid-January 1991, my class of multi-ethnic students went online with their English counterparts to discuss the Gulf War. The first message received read: "Don't worry. We are in this with you." At first my students were silent, but then the discussion exploded. You couldn't keep them quiet. It didn't matter what students were wearing or who belonged to what in-group. Students were united in reading and writing about a joint global concern that affected their lives at that moment.

Girls and boys were equally interested in online activities and often chose to work in cooperative groups. There were some all-girl and all-boy groups, with boys tending to want to write to individual girls and girls wanting to write to either girls or boys. The same was true for their overseas peers. Because of the logistics involved, I reluc-

tantly had to restrict individual pen-pal activity and instead used group letters or messages.

Telecommunications Fosters Fervor for Reading

It is difficult to generate genuine excitement in a middle school reading class. The message, "This story is boring," is often conveyed by body language, if not actually spoken. But with telecommunications, there is an urgency to read, a fervor to devour and unravel stories and letters written by peers from abroad. When Indian students living in an industrial area of England communicated online about their difficulties as immigrants, my average reading students spent hours out of class with their printouts trying to comprehend all that these students had told them. Although these communications were written in English, there were many items distinct to their culture about which my students knew little, requiring them to to consult reference books in order to understand.

My students expressed frustration at not being able to tell the gender of their correspondents by their given names. Nor was there a library reference available that gave Indian names by gender. This lead my students to use contextual clues to infer the gender of the Indian students. Some inferences were logical. Some were not. Students were eager to check the accuracy of their inferences by going back online with their international "classmates."

Telecommunications Empowers Students

Inherent in telecommunications is the capability to empower the middle school reading student. A student who is having trouble in another class, who is frequently late or chronically off task, comes to his reading class, gets online, and exclaims: "Man! I was talking to some dude in Norway!"

As students acquire the skill to go online and reach out beyond their classroom to gain new information, to discuss ideas, and to establish

new relationships, they feel empowered; their self-esteem is enhanced. Who else at school regularly crosses oceans during class to compare, explain, argue, and find out? Where else can a student become a system operator (sysop) and use a keyboard to tap into a worldwide computer network? When students are free to search and obtain knowledge, they are more eager to learn not only what is in the required textbook but also the enriching reality of far-away settings, which makes the textbook come alive.

Telecommunications Connects Reading with Other Curriculum Areas

Telecommunications enhances reading comprehension by allowing students to access people in locations of contemporary interest. More important, this accessing capability provides a means for integrating reading and writing with other subject areas. Students gain a sense of the whole fabric of middle school curriculum. Such integration makes both teaching and learning more efficient by cutting down on duplication of content and homework. And it undergirds the interdisciplinary team approach advocated for middle schools.

Telecommunications Offers an Appropriate Curriculum Fit

Among all the worthwhile reasons for using telecommunications technology in the reading classroom, perhaps the most important is that of curriculum fit. By this I mean that it is an appropriate tool for the specific job of teaching reading. In my original 200-word grant proposal, I had to demonstrate that using this technology would not be just an interesting and fun activity to do. I had to show that by using it I would be able to accomplish mandated learning objectives more effectively than if I had not used it. Otherwise, why use scarce school funds and devote time and energy to an approach that is no more effective than traditional methods? With the maxim of "tool fol-

lows task" in mind, here are the hastily written words I submitted – words that were to change the direction of my teaching career:

> As Pinellas District and Safety Harbor Middle School log on the Florida-England Connection, each pursues powerful standing commitments to educational excellence, together investigating computing in middle school reading and writing instruction and whether computers motivate student interest toward graduation.
>
> The Florida-England Connection is a compelling, frontier *literacy* link, investing seventh-graders – from at-risk to advanced – with the classroom power to access and share information, to learn about another culture and to use the everyday telecommunications tools of their information age. An enjoyable model learning opportunity, it may encourage attendance and involvement.
>
> Integrated as a dynamic tool in the seventh-grade reading curriculum, the Florida-England Connection motivates reading, facilitates writing, provokes research, and expands students' perspectives of their world through:
>
> 1. Bulletin Board: CHATting; compiling and exchanging files, messages, challenges and questions.
> 2. Electronic Pen Pals: Corresponding via electronic letters.
> 3. Comparative Literature: Comparing and discussing popular British and American authors and books for youth (examples: Roald Dahl and Paula Danziger).
> 4. Creative Writing: Taking turns revising and adding to ongoing stories.
> 5. Joint Literary Publications: Publishing an anthology of poems and stories.
> 6. Conferencing: Discussing ideas in real-time groups.

Although specific objectives still had to be selected, lesson plans designed, and activities developed, I had made the first major decision, the specific objective-based areas that I must teach and teach *better* using telecommunications. I had found a curriculum fit.

Apparently the project director, Peggy Roblyer at Florida A&M University, thought so too, since my proposal was selected along with those of 10 other Florida teachers; and we were welcomed aboard for training in Tallahassee. We were going to telecommunicate!

Getting Started

It is surprising how often technology arrives and then people try to figure out what to do with it. In my case, I had some specific educational objectives in mind, so the next step was acquiring and setting up the apparatus, the hardware and software. I was fortunate in that some items were already in place, but some were not. I had an Apple IIe computer and ImageWriter II printer in my classroom, which my reading students routinely used when writing stories and reports. We purchased an Apple personal modem and a special modem card to be installed in the computer. Any PC and modem will do, and it doesn't matter what computers are used by those to whom you send messages. We needed a place to work, a workstation. Our decision was to put it where the computer already was – on a table off to the side of the classroom.

The next need was to have a dedicated phone line installed for exclusive use with the computer in my classroom. At the time I had only a glimmer of the adventures that having a dedicated phone line in the classroom would support. Of course, I soon learned that online learning activities in a single classroom do not require full-time use of a dedicated line. By the second year, I was able to share the line with other teachers in the building through cooperative scheduling.

The cost of installing a dedicated phone line is substantial. I was fortunate in having the support of the project director and the state and district planners, who realized that implementing a middle school

telecommunications operation would require a dedicated phone line separate from the high-demand regular school phones. As the use of telecommunications in schools expands, buildings will need numerous dedicated lines to accommodate students and teachers in many subject areas. When the value of using telecommunications is demonstrated more widely, we can expect to see many more dedicated phone lines in schools.

Although the best location for the telecommunications workstation is the individual classroom, another option is to drop the phone line into the media center. The ideal situation is being able to access the world right in your own classroom, with little time lost moving students from classroom to media center. And it is convenient having reference books, computer files, printouts, and works in progress filed in student folders all readily available when you need them. But it certainly is feasible to operate the program from a central computer lab. Schools with existing computer labs often start telecommunicating this way.

In my own school the media center specialists have since set up a classroom-sized area conveniently located adjacent to the telecommunications workstation in the library. This way other teachers can go to the library and go online.

Communications software directs the calling, sending, and receiving functions required to go online. This software may come built into the computer, may be installed by the user on a hard-disk drive, or may be summoned from a disk. At the beginning of my project, I learned just how crucial this software is. Without it, one doesn't telecommunicate. My students were empathetic when I complained that now that I had my software, I couldn't make it work! A step-by-step reread of the manual and a number of sorties from resourceful people were of no avail. Clearly, I needed software that was more user friendly.

Fortunately, a colleague told me about the software package called *Proterm*. When this software, developed for the Apple II family of

computers, was installed, in minutes the modem was doing what it was commanded to do – accessing the network phone number with an audible seven-digit beep, high-pitched tone, and crackly whir. We were online at last! The students sent up a shout when they saw the first request, "Please sign on." What had been a formidable and, to me, intimidating undertaking, became easy, thanks to friendlier software.

Choosing a Computer Network

The Florida-England Connection already had selected which networks we would use and had enlisted partner schools in England that subscribed to the same networks. A network serves as a kind of electronic switchbox hosting communications for many subscribers. Some network services are solely for sending your messages via special gateway connections. Others provide bulletin boards on which notices can be placed, as well as offering hospitable online staff with good ideas for classroom projects using the networks.

For our project we used the network called Tymnet to send and receive transmissions. Another service called Campus 2000, located in London and accessed via Tymnet, would link us with our school partners in the United Kingdom. These two services are fairly expensive. Tymnet charges a set-up fee of about $29 and then $29 monthly for the first user plus about $15 for each hour of online time. Monthly billing is variable, depending on the time used online, measured in thousandths of seconds. Campus 2000 charges a flat fee, about $450 dollars for a full year's use.

A sample of other services and networks is listed in the Resources section at the end of this fastback. Reading teachers should investigate these and others to determine whether they are within their budgets and whether they are appropriate for the specific needs of the reading curriculum. If funding is limited, perhaps a state network such as Florida's FIRNMAIL, which is free to educators, can provide the online links.

Controlling Expenses

Although the cost of going online with our project was funded by a state grant, expense was still of concern. Since a specified amount of money allotted to online services had to last for the five-month duration of the project, keeping track of online time became a priority. This was not easy to do, especially at first when we were learning the skills of telecommunicating and then practicing them.

One way of controlling the cost of online time was securing the password so that students could not go online at will, unless I entered the password. My students were quite upset with me when I did not leave the password with the substitute when I was away attending the state reading conference and the International Reading Association Convention. As a rule of thumb, I restricted online time to only when we had planned for the online session.

Careful preparation of all outgoing messages and documents offline saved time when we were scheduled to go online. The items sent were far better edited and stored together in files on the same disk. Thus they could be sent online at the same time, which was a time/money-saver. In our second year of telecommunicating, we combined messages from several other reading teachers' classes, resulting in a considerable drop in the per student online costs. Some networks encourage sending messages at off-peak hours to obtain cheaper phone rates. Unfortunately, we were operating in prime time during the school day.

To make optimum use of online time, it was necessary to plan each session carefully. We placed needed materials, data disks, and step-by-step command instructions next to the computer beforehand. Students were apprised of each upcoming online session and time was allowed for them to get settled before transmitting. Specific session plans were written out, a timesaver at the actual moment of sending. Below is an actual session plan, which includes the name of the disk and the file to be sent online.

Session 23, 2/15

1. Check messages from Gateway School/Soar Valley College.
2. Scan and capture new messages.
3. Send P. Roblyer/Tallahassee reply — /PER4/REVIEW.
4. Send Chris Walker/Wallace H.S. Stirling, Scotland-/PER2/Hello.
5. Quit.
6. Print downloaded messages, if any.

The students and I made a rule to cover frequent online surprises. We called it the "surprise rule," and it goes into effect when a class goes online to work and finds a tempting, if unexpected, invitation to share in some activity. It may be a request to respond to a survey question or to download data, say 25 poems on ecology sent unsolicited to your mailstop. While such communications from other students on the network are well-intentioned and cannot be considered junk mail, they do consume online time and divert students from the curricular-based work carefully prepared for that online session. So the task-oriented surprise rule is: Carry out the planned session.

Evolving Operations

Telecommunications is a late-breaking event, which required us to change our operational procedures from the minute we started the project. Even with the training I had received, I soon learned that I didn't need to know everything about telecommunications in order to begin. If something didn't work, the students and I modified it until it did. If we didn't like something, such as a traffic pattern or rotation, we changed it at once, in keeping with the immediacy of our telecommunications tool.

After just a day online, Suzanne, previously disinterested in reading, became concerned about our growing pile of printouts. She insisted on organizing our output in folders so that we could find things

when we needed them. Another student suggested we post the printouts near the door so that everybody could see the latest incoming messages and responses.

Evaluation became routine in our project. What did we learn today from this novel? Is there a better way to prepare answers for the students at Gateway School? Why is it taking so long to input the reviews? Should the cooperative learning groups each write to an individual at Gateway School? Problem? Fix it.

As to discipline, little was needed. High interest kept wandering minds on task. Nevertheless, I did make one simple rule, which had to be enforced only once: OFF TASK, OFF BASE, OFF LINE! One day of being the only class out of five that would not be allowed to check for messages soon ended the need for such a rule.

The Florida-England Connection

After two days of training in Tallahassee, I came home ready to start my Florida-England Connection project. By then, my general plan was becoming more specific and reflected the state's Performance Standards. While there would be some changes as the project evolved, the plan I carried out was essentially the one I submitted to the state.

My plan called for the study of the elements of literature (author's purpose, setting, characterization, mood, tone, plot, and theme) by studying two novels, one by an American author and the other by a British author. Students at the Florida and England sites would compare/contrast each author's novel, focusing particularly on the cultural differences and similarities in the two novels. After completing their reading, students working in cooperative groups would document their findings by writing promotional "reviews" of each book.

The cooperative groups at each site would work independently at first and then, through telecommunications, exchange information and ideas, share reviews, and revise and publish their reviews. There would be time in these plans, of course, to review and practice standard written English, to experience the writing process by producing a variety of products for different audiences, and to engage in purposeful oral activities.

Goals to be assessed in the project included: Would students' cultural awareness increase? Would their perceptions be positive? Would

students better understand and appreciate literature? Would they become more proficient in analyzing literature? To assess these goals, we administered a pre-test using the semantic differential technique to determine students' knowledge and perceptions of people from England. This technique uses pairs of positive-negative or negative-positive adjectives to respond to statements – in this case about people from England. At the end of the project, this test would be repeated and the semantic differential measure would indicate changes, if any, in attitudes about English people. In addition, outcomes related to the objectives pertaining to the elements of literature would be measured by conventional quizzes and short essays, which I devised.

The two books selected for the Florida-England Connection were Roald Dahl's *Danny, the Champion of the World* (set in the Buckinghamshire countryside) and Paula Danziger's *Remember Me to Harold Square* (set in New York City). Each book was typical of the author's writing environment, providing a strong contrast of rural and urban settings. One had multiple characters, the other just three main characters. Both had plots involving a race against time. In the students' perceptions, one seemed to be taking place in slightly earlier times, the other right now.

My district reading supervisor provided us with paperbound copies of the two novels, which we proceeded to read two periods a week. Student volunteers would begin a chapter reading aloud for oral practice, then everyone would finish reading the chapter silently. By the end of the second month, it became apparent that reading the novels only two periods a week was not enough. My students were so interested in reading and preparing their reactions to send online that I asked permission to set aside the regular basal text. By November we were fully involved in a new approach to reading.

As most reading teachers do, I set up an environment to help students build some background about both rural England and supercity Manhattan USA. We brought in maps, newspapers, souvenirs, coins (subway tokens from New York City), and a constant troop of visi-

tors. Once the word was out that I gave extra credit for artifacts or guest speakers, some students even interviewed British tourists at the beach, whom they recognized because of their accents!

The student vote for the favorite artifact went to a real stuffed pheasant I borrowed from a men's clothier. (Poaching pheasants is central to the plot of the Roald Dahl novel.) My favorite guest speaker was someone's uncle visiting from England. He told us much about his native Liverpool in an accent so thick the students could barely understand him. One boy remarked, "But I thought he was going to speak English." This experience launched a valuable discussion the next day on the varieties of spoken English.

Students sent their English school partners a large box of artifacts reflecting our community – a T-shirt with our school logo, Polaroid snapshots of the class, postcards of our beach. Since we were matched with two schools, we mailed and received two such boxes. Because classes in our partner schools had far fewer students, we decided to write group letters and send them to individuals in the smaller classes abroad. My seventh-graders eagerly opened the packages we received from our partner schools and pored over letters containing information that later would serve as a starting point for more personal relationships once we went online. We pursued these traditional "hello" activities while waiting for our modem and software to arrive.

In September 1990, when I first introduced the Florida-England Connection to my two sections of advanced readers, the response was less than enthusiastic. They could not see anything unusual about the Apple IIe computer sitting on a table in my classroom where it had always been. Since I could not yet demonstrate how we were going to telecommunicate, it was mostly just a lot of talk to them. Besides, our English school partners were in a distant place about which they knew very little. I learned of this deficiency by asking my advanced students to complete semantic maps for the word "England." This exercise revealed superficial knowledge about England. The associated words or phrases on the semantic maps were limited – popular rock

groups, visiting soccer teams, and British royalty. However, as soon as we had exchanged conventional letters with Roald Dahl himself and learned that the Gypsy wagon on the cover illustration of his novel actually stood in his garden, student interest quickly picked up. "Just think," said one student, "a 'real' person from there wrote us!" Now students were ready to start reading and writing in cooperative learning groups.

I should have known better than to try to restrict the telecommunications project to only my two advanced sections. The news quickly spread to my other three reading classes that we were doing something "different," and they wanted to be on board. With permission from district administrators, my three other reading classes were added to the project. Now 150 students were involved in the Florida-England Connection! Although less than eager readers, most of these students read both books in their entirety, discussed and wrote about them, and sent their observations online to England. Some even elected to read other books by our two featured authors. Several students admitted that these two novels were the first ones they had ever read "all the way through."

A few students did reports comparing cricket with baseball and rugby with American football. Students also loved listing idioms they picked up when reading. The American list included such choice items as "going bananas" and "driving me crazy." The English list included such expressions as "a spot of tea," "not cricket," and "I say." Students speculated on what zany interpretations their English friends might have for American idioms. Others wondered if the English students might be having a good laugh over our reactions to British idioms.

Conducting Online Operations

We spent most of the first year trying to make it possible for everyone to have a turn at the keyboard and to transmit online to England. We posted rotation charts for computer time in order to be fair. At

one time or another, all 150 of my students, usually with a partner, prepared messages offline and then entered them into the computer. Several students served as the system operators who took us online. Eventually, during an actual online session I was needed only to type in the password.

In order for the whole class to see the on-screen activity, we used a projection panel, which is seated on an overhead projector and displays the computer screen image on the wall. When using it, we lowered the lights and used a small lamp near the keyboard to assist the system operator. When we hooked up the computer to a large TV set to enhance legibility, we set the color controls for black or white letters on a purple background with a purple frame.

While a class was engaged in a conventional assignment, a pair of students would move to the computer to enter their messages and promotional book reviews. This became part of the regular routine and caused no disruption. Before long it also was quite normal to access the network, check for a message, send a response, and print it out – all while roll was being taken. The printout was scanned for items of interest and posted on the front wall, which soon took on the proportions of a giant bulletin board where students could stand and read during and between classes. "What's come in now, Dr. Potter?" were often the first words uttered when a student arrived in class. Then, down would go the books on the desk and the student would go to the wall – to read.

Finally, everything was in place to go online with our partner schools in England. Using the word-processing software, Appleworks, a member of each cooperative group (there were five such groups in each class) had composed initial greetings to the partner schools. There was nearly a disk full of back-to-back "hello" notes and letters to our partner schools in England. They had been edited and were now ready to be sent as a batch online. It was time to greet our overseas friends for the first time.

We reviewed the procedure for going online many times before trying the England link. We walked through it following the steps

on the sequence chart posted on the wall. Then we actually practiced going online using the affordable Florida state E-mail system, exchanging messages with other classes in the project. Even though we had practiced the online procedures for days using the E-mail system, we all were nervously aware that we were being charged for every second online. We knew how to sign on and, most important, how to sign off, commanding the computer to hang up the phone.

The two students sitting at the keyboard followed the steps, and soon the computer screen enlarged with a projection panel displayed on the wall the message, "Please log in." The students typed in our ID or user name and then I typed in the password. (Since passwords are not displayed on the screen, they are secure.) Immediately we were welcomed to the network. "Are we really *in* England?" someone shouted. A cheer went up from the class.

The messages we would send had previously been saved on a disk. After typing a simple command, students watched their messages rapidly scroll up the screen as they were uploaded. Another command would send our messages, and soon the screen informed us the sending was complete. We promptly exited the network and signed off.

Despite our initial nervousness, we soon became adept and could go online and sign off within five minutes. Then we used the rest of the session to talk about the messages we had received or sent. We usually saved the whole transmission in what is called the buffer memory of the software. Once we were offline and the clock was no longer running, we would print out a copy of everything we had sent and received. Only infrequently did students write messages while actually online. Writing ad lib usually resulted in many errors taking costly time to correct; and even when students attempted to make corrections, many errors were still transmitted. When students realized this, they concluded that it was better to write their longer messages and reviews offline and edit them before sending.

New needs emerged as the project progressed. I found I needed to teach a lesson in computer ethics. We discussed such issues as pass-

word security, restricting online transmission to only legal activities, and making sure all our writing used acceptable language. I also felt the need to teach about computer etiquette. We learned that writing online entirely in upper case is perceived as shouting, that one is expected to check E-mail often and to respond to messages quickly, and that writing online should convey polite concern and have a personal touch, closing perhaps with "Have a good day."

Students learned that their messages could convey humor and novelty by using configurations of type to express feelings; for example, a colon followed by a hyphen followed by a closed parenthesis produces :-), which, if you tilt your head to the left and look sideways, is a smiley figure. Students enjoyed using this kind of novel graphic message.

Problems with Timing

Because it took so long to obtain the necessary software and online network connections, our time window for joint online project work was greatly reduced. Also, our English partners' winter and spring holidays barely overlapped with ours, allowing time for only a few exchanges. While everybody worked hard at using the limited time available, the offscheduling reduced our planned exchanges from ten batches to four. Nevertheless, we relished receiving each batch, which whetted out appetites for further online learning ventures.

Other Learning Links

Once we had mastered getting online, students wanted to explore other possibilities. Since we were way ahead in reading our novels and were waiting for responses, we read through the London-based Campus 2000 noticeboard to see what other online activities might fit into our studies. Some of the interesting activities we found to do are described below.

Students in Wallace High School (combined middle and high school) in Stirling, Scotland, wanted to exchange group letters with us. The cooperative learning groups went back to work enthusiastically writing and editing messages to send. Students took final drafts to the computer and rapidly entered their work on a computer disk, which would later be transmitted online.

A school near London was requesting answers to a survey about recycling. My students did research on our local recycling efforts and supplied information to a global database. Later they received an online summary on the survey findings. There was vigorous discussion on the uses of various kinds of paper and a polite argument with peers abroad about a statement that said that recycling paper has "no effect on saving the rain forests."

Twice we read and discussed student poetry sent to us from England. Several students uploaded their own original poetry. We checked the state university system's online library catalog to locate titles about London. We also entered an essay contest sponsored by Prodigy, another online service. Using regular mail, 58 students sent essays on their predictions about telecommunications in the year 2010. An excellent essay by one of my students earned her a regional winner's plaque and a telecommunications rebus shirt. A Prodigy network official visited our classroom to make the presentation and responded to the students' many questions about telecommunications.

Evaluating the Florida-England Connection

We carried out five of the six activities in my initial 200-word proposal. On the cultural awareness post-tests, students indicated that they had an increased knowledge of English people and a slightly more positive view of them than at the start of the project. Students probably learned more about the elements of literature by reading and discussing the two novels and then writing their promotional reviews than they did from from actually sharing their ideas with their partners abroad. The process of preparing information to send to distant

partners was actually the goal of the project, regardless of whether such information was sent online or not.

Our first year of telecommunications in a reading class proved to be a good curriculum fit with the state's mandated performance standards. The information exchanges with our partner schools, although regrettably too few, served to bolster flagging interest, motivated additional reading and writing, and offered a relevant vehicle for expressing new ideas and perceptions.

On formal post-tests, students did show that they understood the effects of cultural environment on elements of literature as illustrated in the two novels read. Students delighted in reading aloud Dahl's descriptive passages cleverly laced with as many as seven short prepositional phrases. They also enjoyed Danziger's awful puns. They roared at the hilarious pheasant escape episode in Dahl's novel, yet were perceptive about how the author achieved his humorous effect. There was lively debate about the practice of poaching, a critical incident in Dahl's novel. Some students were adamant that the hero should not be poaching since it was illegal. Another defended the practice arguing, "But that comes from history over there, see."

Additional Learnings

In short exit essays, student made it clear that the additional mini-projects we carried out online had enriched their learning and increased their understanding of telecommunications. Before the project was over, students were taking telecommunications in stride – a normal classroom activity, like using a movie projector.

Students gained a better sense of our historic links with England. They enjoyed perusing world and British maps and became more aware of the distances we were covering through telecommunications with our British partners.

Besides the numerous printouts, the front wall of the classroom was also covered with computer paper charts. Over the months, as students read the novels and received information online, they entered

detailed notes about the authors and their writing on these charts. (We had written to both Dahl and Danziger requesting author information. Dahl responded, telling us about his book we were reading. Danziger's agent sent us a brochure on the author.) The students regretted that neither author had been able to participate directly in our online activities.

Students concluded that their English peers were very much like themselves. Jalene noted mutual interests in rock groups and sports and also that "They don't like to do family chores." Differences noted were the wearing of school uniforms and some unfamiliar expressions in the incoming messages. However, students were quick to pick up on some of these expressions. Phil, smiling smugly, commented that, like us, English students were very "keen" to go "on holiday." Students in one class routinely began to say, "Cheerio," as they departed at the bell.

A Diverse Second Year

The second year of our project was definitely easier. We knew how to manage the technology and were able to expand and diversify our telecommunications activities. My students and those of other reading teachers contributed to an international newspaper and student opinion poll. For a second Prodigy contest, we submitted essays online. Reading students researched, designed, and wrote joint travel brochures with their English partners. We linked up with the librarian in Stirling, Scotland, whom we had "met" online the previous spring. Students in both countries downloaded each others' favorite recipes, folk tales, and hide-and-go-find literary questions requiring library research.

After much careful planning, we were able to set up a CHAT or written conversation in real time (9:30 a.m. our time, 2:30 p.m. England time) with an eager group in an English school. Sitting in our reading class was the American author, Nicole St. John, ready to be interviewed online by English students who had read some of her

books. While classes on both sides of the Atlantic watched, the dialogue between St. John and the students appeared on a split screen for all to read.

Cross-disciplinary learning occurred as students shared poetry on an ecology theme. Students in physical education classes input their track records for an online track meet. Our ESL students teamed up with Norwegian ESL students to discuss teen interests and compare schools, while at the same time practicing their English language skills.

During the Gulf War, students were able to send free online messages to relatives and friends in the military. Parents sent in messages for students to input; some even visited school and watched proudly as their child sat at the keyboard sending the message to Saudi Arabia. Students were fascinated as they read the exchanges of students interviewing a U.S. military public information officer in Saudi Arabia. Several printouts of the interviews were needed to meet the demand of students in other classes who were not present when the transmission first came in. They were satisfied reading it offline. Many asked to take the printout home to share with their parents.

As I write this (September 1991), we are beginning the third year of telecommunications in our middle school. Sixth-graders have just finished reading a lengthy printout of an online session between several Russian teachers and U.S. teachers, using the network service, GTE World Classroom. In their social studies classes these students are preparing questions to ask Russian teachers and scientists who will be online next Monday. Meanwhile, they are enjoying reading printouts of some charming Russian fables and vivid descriptions of life in Russia, which had been sent earlier from Moscow. How much more timely, relevant, and purposeful can reading and writing get?

What We Have Learned So Far

After getting over my initial anxieties, using telecommunications has become as natural and routine as using any other technology. Thirty years ago I remember lugging a heavy Wollensak tape recorder to my classroom to tape students reading plays. Now my students and I are conversing online with a partner school thousands of miles away, but operating the technology does not seem to be any more complex.

Nevertheless, we are just getting started with classroom telecommunications. Even in my large middle school, where four language arts teachers and three reading teachers have already used online telecommunications for classroom instruction, it has not yet been integrated into the regular curriculum. We hope to change that. My school's technology committee is requesting more modems and dedicated phone lines in order to expand telecommunications opportunities, and 45 of our 100 teachers have now tried some aspect of it.

Impact on Students

Once they had learned the operational procedures, my students enjoyed their online experiences, despite their impatience at times with the sluggishness and infrequency of responses from some online partners. They showed greater interest in coming to class (no doubt in anticipation of receiving messages, which came at random times). They also demonstrated increased attention to the tasks and prepara-

tory lessons associated with their online transmission, and they persevered in revising and editing their writing. These positive outcomes spilled over into more conventional reading assignments as well.

I cannot confirm whether students in the Florida-England Connection project actually learned more than students in reading classes who had not participated in the project. What I do know is that the project had a lasting impact on them. This was demonstrated to me in the fall following the first year of the Florida-England Connection, when a group of students, now eighth-graders and no longer in my reading classes, came to me with a news clipping reporting the death of Roald Dahl. They were saddened by the death of the author whose novel they had read and enjoyed the year before. They had lost a friend.

The Parent Connection

Another positive outcome of the Florida-England Connection was that it provided a new vehicle for improving school-home relations. Once students learned the basics of telecommunicating, a number of them took the new skill home. Using family PCs and a variety of network services paid for by parents, students began to contact each other. Some parents even communicated with me online! When we used Prodigy at school to submit our essay contest entries online (with a borrowed Tandy computer) and to search for information in its online encyclopedia, parents began to realize the potential of such services to benefit school work. They were elated that students wanted to demonstrate their new skills. One parent reported, "Sara didn't use to like reading or reading class. Now she can hardly wait to go to class. She wants a computer and modem for home."

What could telecommunications mean to school-home relations? In some schools every classroom is being cabled for telecommunications. Could this mean the end of telephone tag with parents? Some school districts are purchasing laptop computers with modems. Students will check these out to do homework. If they miss a few days of instruction because of illness, they can check online for assign-

ments; or if away on an unexpected trip, they can actually send in written assignments from great distances, much like wire service reporters have been doing for years. If new students enroll in mid-semester, they can go online to review content and assignments and catch up with the class without taking a lot of the teacher's time. This, too, will help school-home relations, since parents often feel guilty about moving their children in the middle of a school term.

Recommendations for Implementing Telecommunications

In the first two years of the Florida-England Connection project, I have learned, through experience and trial and error, much that I would like to share with others considering the use of classroom telecommunications. What follows is a set of recommendations that I hope will help interested educators to get started.

Learn All You Can About Telecommunications

Telecommunications is a hot topic. Much has been, and is being, written about it in educational journals and in many other sources, from in-flight magazines to *Scientific American*. Several references are listed in the Resources section at the end of this fastback. Also listed are useful networks, services, and software mentioned in the text. These provide many practical ideas for those interested in incorporating telecommunications into classroom instruction.

Another good way to acquire up-to-date information is to attend conferences on classroom telecommunications. Although national and state conferences devoted exclusively to instructional computing are the most likely places to learn about new developments from experts in the field and to observe demonstrations of the latest technology, many of the subject-matter organizations are offering sessions on instructional computing at their state and national conventions. The 200-word proposal that won me the opportunity to participate in the

Florida-England Connection was developed directly from information gleaned from attending workshops and sessions at the International Reading Association (IRA) and Florida Reading Association conferences. At pre-convention institutes sponsored by IRA's Computers and Reading Special Interest Group and its Video and Reading Special Interest Group, I heard teachers from Virginia and New Jersey explain the how, what, and why of their own classroom telecommunications. They were the inspiration for undertaking my own telecommunications project.

Still another source of help is a mentor, someone who has had some telecommunications experience and is supportive of your efforts to introduce telecommunications in the classroom. A mentor can serve as a listening post for your problems and questions. Your district computer supervisor can advise you about software purchases and help to arrange for a dedicated phone line; but for day-to-day instructional decisions and telecommunications operating procedures, a mentor can be a great asset. If you can find such a mentor in your own building, consider yourself lucky.

Allow Ample Time for Start-Up

The Florida-England Connection project plan expected me to accomplish too many new things at once. It was nearly overwhelming! While it is important to be involved in all the planning steps leading to implementation, try to do it gradually. If possible, allow a semester to plan, set up, and practice short trial exchanges before undertaking a full-blown project. By going slow, you avoid making your first telecommunications experience seem like an add-on to everything else you have to do with your regular teaching load. Classroom telecommunications should not be more to do; rather, it should be a *different* way of doing instructional tasks.

There is much to learn about telecommunications operations even if you are online. Both you and your students will need time to practice using the computer in this new way. If it is possible to take a

computer and modem home, do so. Many teachers prefer to learn the procedures in an informal home setting, without the distractions that inevitably occur at school. It costs nothing to jack a modem into your home phone, and you can practice by accessing local or 800 numbers to access electronic mail and bulletin board services. You can locate these services, sometimes free but more often for an affordable fee, by calling local user groups or computer dealers. These services have subscribers with whom you can communicate. Many teachers encourage a friend to join them in this learning experience.

Keep the Focus on Instructional Objectives

Telecommunications offers many novel opportunities that are fun to do, but the focus of classroom telecommunications should be on instructional objectives. If Florida students are reading and analyzing Jack London stories, input from peers in Alaska, the setting of many of his stories, could enhance their understanding of the importance of setting in literature. If a class is studying idioms or figures of speech, exchanges with a partner school in England would give students an opportunity to discuss and compare each others' colorful idioms. If understanding the writing process is the objective, students might CHAT live with an author at a distant site. This happened recently in Florida with classes at five different sites "talking" with Piers Anthony, the award-winning science-fiction novelist, who was at still another site. The computer screen was divided into six sections, so students at each site could see what questions the others were asking as well as the author's responses. The event took 45 minutes.

By keeping telecommunications activities focused on specific instructional objectives, much can be accomplished during one or two online sessions.

Select Experienced Partners

If possible, select online partners who already have had some experience using telecommunications. If you are a novice, concentrate

on managing your own workstation activities and on making them part of your regular teaching routine rather than trying to help a fellow novice, who is not yet ready to provide useful feedback.

Begin with Online Partners Closer to Home

Although international online links are exciting, a better option for newcomers to classroom telecommunications is to start with partners closer to home. A number of school districts and some states now offer networking services to teachers that are both easy to use and economical.

International links are more complex to arrange and present some vexing variables. Differences in language, customs, time zones, and school vacation schedules are some of the obvious complicating factors. There also can be misunderstandings over the cooperative agreement arranged with partner schools, especially when requirements of a mandated curriculum must be considered.

Then there are factors beyond your control that can create frustrations. It is hard on a seventh-grader who frets over not receiving a response from his latest message, when the first book review he sent last month got an immediate reply. One teacher at our partner school in England suddenly moved to another school; in another partner school the software was stolen. My students waited more than a month before learning of this unsettling news. If these problems had occurred with a local partner, a brief note or phone call could have cleared up the matter quickly.

Although my recommendation to newcomers is to start with local links, once having gained some experience, you should consider setting up an international link. The rewards are many, and students quickly learn much about our global village. Just two years ago my students read a Japanese folk tale in their anthology. This year my class not only read it but shared their views online with Japanese high school students! With a little know-how, classroom telecommunications can become a global textbook for reading classes.

Invite People to Observe Telecommunications in Action

Classroom telecommunications is a crowd-pleaser. Parents and others in the community need to see it in action in order to realize the potential of this technology for learning. Somewhere down the line they will be asked to support the hardware and software needed to expand telecommunications to all parts of the curriculum. An online event is an ideal activity for a Back-to-School Night. During Education Week, the reading teachers in my school staged a Telecommunications (T) Party attended by administrators, parents, subject supervisors, and one school board member. With the computer screen displayed on a large TV monitor so all could see, students took turns demonstrating how messages are sent and received. Then the teachers, with help from their students, gave enthusiastic testimonials about their various online curriculum projects.

Parents also should be urged to observe telecommunications sessions during the school day. Let them see their own child checking for messages and then downloading them. Many parents who came to our classes work in computer-related occupations and are thrilled to see familiar technology actually being used to help students read better. As one dad remarked, "I am really impressed with how my son is reading and following such detailed instructions" (by then, a routine procedure for my students).

Let Management Evolve

Teachers using classroom telecommunications plan lessons, prepare materials, schedule turns at the computer, arrange cooperative learning situations, and try to time it all to fit into periods controlled by bells. For these tasks I had lots of help. My students quickly figured out how best to monitor turns at the keyboard and how to share leadership of cooperative learning groups. Student input flows as they gain online experience. When our online sessions were interrupted by someone coming into the room to see me, students realized that our

online phone charges were running up. Their solution was to post a sign on the outside of the classroom door before every online session:

DO NOT DISTURB!
We are online to England.
Please come back in a few minutes.

Conclusion

The powerful experience that telecommunications brings to the teaching of reading clearly changes both the delivery of instruction and the role of the teacher. More significantly, it restructures the way that students learn and communicate. With technology that can access the world, we were able engage in dialogue with Africans living in England, who were concerned that Americans had just bought their town's important potato chip (crisps) factory. We even shared the exultant message of a Moscow teacher who stood at the barricade in front of the Russian Federation Building at the time of the coup in August 1991. Reading such messages turns the whole class on to learning. Everyone hangs on to each printed word as it appears on the screen, not wanting to leave when the bell rings. Students eagerly wait to see what will happen next and discuss and predict outcomes in a purposeful way, which no reading skills workbook can induce. Joey, a sturdy seventh-grade football player who struggles with conventional reading assignments, remarks, "We don't do telecommunications *after* we work. It *is* the work."

Telecommunications offers a reading delivery system that quickly earns it a center-stage position. For teachers of reading and of other subjects, it offers a dynamic restructuring of classroom learning. Along with other emerging educational technologies, classroom telecommunications is likely to become the new Gutenberg press. Once introduced, there is no turning back, only going forward.

Resources

Books and Articles

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Wishnietsky, Dan H. *Using Electronic Mail in an Educational Setting*. Fastback 316. Bloomington, Ind.: Phi Delta Kappa Educational Foundation, 1991.

Software

Proterm (Version 2.2)
InSync Software
3035 East Topaz Circle
Phoenix, AZ 85028-4423
(602) 992-5515

Services

Campus 2000
Priory House
St. John's Lane
Dept. F-32
London EC1 4BX England
011-44-71-782-7401

Tymnet
British Telecom
(BT TYMNET)
2560 North 1st Street
P.O. Box 49019
San Jose, CA 95161-9019
(408) 922-0250

GTE Worldclassroom
GTE Education Services
8505 Freeport Parkway
Suite 600
Irving, TX 75063-9990
(800) 634-5644

AT&T Learning Network
Jim Putnam, Network Manager
P.O. Box 4012
Bridgewater, NJ 98807-4012
(800) 367-7225 Ext. 4158

Computer Pals Across
the World
P.O. Box 1206
Lake Oswego, OR 97035
(503) 691-1689

FrEd Mail
Al Rogers, Executive Director
The FrED Mail Foundation
P.O. Box 243
Bonita, CA 92002-0243
(619) 475-4852

National Geographic
Kids Network
National Geographic Society
Educational Services
17th and M Sts., NW
Washington, DC 20036
(800) 368-2728

Prodigy
P.O. Box 8129
Gray, TN 37615-0667
(800) 825-2659

Classmate
Dialog Information
Services, Inc.
3460 Hillview Avenue
Palo Alto, CA 94304
(800) 334-2564

KIDS-92 SciLink 131
Bloor Street West
Suite 200
Box 326
Toronto, Ontario M5S 1RS

Florida Information Resource
Network (FIRN)
Florida Education Center B1-14
325 W. Gaines Street
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